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MOVING IN THE RIGHT DIRECTION IN THE DISCUSSION SECTION OF RESEARCH ARTICLES

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ABSTRACT

The discussion section forms an integral part in the writing process of a research article (RA). It is a pivotal section where proposition of findings and rebuttal of claims conflate. For such writing to be credible and be accepted by the discourse community, it is important for writers to structure their arguments along the accepted communicative moves. To date, a plethora of studies on rhetorical moves in research articles abounds but most research focuses on only moves which are at the macro level. Therefore, this paper seeks to examine not only the rhetorical moves but also the relevant steps within a move. The study also examined the linguistic realizations that identify each move and step. To realize the objectives, a qualitative analysis of 16 discussion sections of RAs in medical sciences and applied linguistics disciplines were conducted. A model of 8 moves was used as an initial framework for move analysis. The findings demonstrate the manifestation of three steps in move 1 and another three in Move 5. In addition, two moves namely *Implications* and *Summary of Results* were also found in the analysis. Regarding the disciplinary differences, move 2 (*Finding*) and move 5 (*Explanation*) were found to be obligatory in AL discipline while Move 7 (*Concluding information*) was the only obligatory move in MS discipline. Based on the findings, a more holistic model on moves and steps was drawn along with a list of linguistics cues pertinent in each move and step.

Keywords: Research articles, discussion section, communicative moves, linguistics cues, disciplinary variation.

INTRODUCTION

In the last few decades, there has been a surge for global recognition among universities (Morris, 2011). One of the recognitions is to be listed in the top-ranked universities worldwide and maintain the coveted position and with high visibility of high impact journals from the institution. According to Nassi-Calo (2013), 55% of the total points that count in the ranking are extracted from the number of publications, citations and articles with international cooperation. Thomson Reuters (Web of Science ISI) and Scopus indexed databases are the two most recognized indicators published and cited research articles (Rauhvargers, 2011). The focus on publications to remain comparative has resulted in a growing obsession by institution of higher education to conduct workshops on publishing research. In turn, postgraduates and lecturers alike have to write and publish research. The former is fulfillment of their graduation and the latter for their annual key performance index. This demand is further compounded by the difficulty of getting articles to be accepted in prestigious journals such as those indexed by ISI and Scopus.

As journals require impeccable writing, postgraduates and novice writers would need to learn fast the craft of good research writing. Perhaps, one easy route to successful research writing could be learning the structure of research article. Like all types of writing, a research article has its own genre. Typically, a research article consists of sections such as introduction, method, and discussion and each one of them is a sub-genre of a research article. Among the different sections in a research article, writing the discussion section might be the most challenging for writers. This proposition has been confirmed by several writing scholars (Jaroongkhongdach, Todd, Keyuravong, & Hall, 2012; J. M. Swales & Feak, 1994, 2004). One of the challenges is that writers find it hard to write a well-organized discussion for their results. The reason could be due to the argumentative nature of this section as Discussions should be more than just a summary of writing. It is the section where writers are required to explain their results, provide examples for further clarification, and make a comparison with existing literature and of course stating their claims by providing convincing evidence (Smith, 1984). These multiple tasks that writers need to do in the discussion section are essentially what writing scholars termed as communicative functions in a text. In genre analysis, these communicative functions are realized by moves and steps which together fulfill the communicative purpose of the discussion section of a research article.

A rhetorical move is generally viewed as a function of a specific segment of a text (Ruiying & Allison, 2003). In other words, a move can be a sentence or group of sentences or even a paragraph that serve one or multiple communicative functions in a text. On the other hand, a step is a very specific rhetorical means employed to reveal and realize the multiple functions of a move (Ruiying & Allison, 2003). To put it simply, a step is at a lower level than a move and it functions as an 'elaborator' of a move.

Knowledge of the rhetorical structure of the discussion section is crucial in navigating the argument in a well-organized and convincing manner and therefore easily acceptable by the readers (Kanoksilapatham, 2005; Ruiying & Allison, 2003; J. Swales, 1990). Apart from this, knowing the common linguistics realizations of each move and step will ease novice writers' attempt at writing the discussion section of RAs. The linguistics realizations can be single words, phrases, discourse markers or/and connected chunks. On the whole, writing a successful RA requires writers to know not only the text type of the discussion section but also the appropriate linguistic realizations associated with each move and step. This notion is further affirmed by Flowerdew and Wan (2010) who noted that having a proficient knowledge of English as well as move-step structure of RAs can highly contribute to the publication of RAs in prestigious journals.

It is not surprising that many studies have been undertaken to investigate the work related to the writing of RAs. Some studies investigated the disciplinary variation in Applied linguistics (Amnuai, 2017) Dentistry (Basturkmen, 2012), and Medical Sciences (Fryer, 2012) in terms of move structure in the discussion section of RAs. These studies have used different models to analyze the moves/steps in RA discussion section. In this, Amnuai (2017) used Ruiying & Allison's (2003) to analyze their corpus of applied linguistics, Basturkmen (2012) adopted her model (Basturkmen, 2009) to examine the rhetorical organization of Dentistry RAs, and Fryer (2012) developed a framework based on the models of Swales (1990) and Nwogu (1997) to analyze a corpus of medical RAs discussion. However, their findings were similar in the sense that moves Findings (Reporting the results) and Explanation (Commenting on the results) were the most common employed moves in the discussion section and were seen as obligatory. This finding indicates that no matter in which

academic disciplines (Medical Science, Applied Linguistics, or Dentistry), authors of RAs must state their findings and comment on them when they write their discussion. However, there are differences when it comes to the employment of other moves such as *Referring to Literature* and *Indicate Limitation*. The frequency of these moves is varied from one discipline to another. While moves *Comparing results with the literature* and *Indicating limitations* were seen as conventional and optional respectfully in applied linguistics corpus (Amnuai, 2017), their occurrences were obligatory in the discussion of medical RAs (Fryer, 2012).

Other recent studies were conducted to examine the move structure of RAs discussion section in the field of Chemical Engineering (Jin, 2018), Law (Tessuto, 2015), Psychology (Moyetta, 2016), and Applied Linguistics (Liu & Buckingham, 2018). Move *Providing background information* was found to be obligatory with an occurrence of 100% in the discussion section of Law and Psychology RAs. Move *Commenting on results* and move *Reporting results* were found obligatory in the mentioned fields of study. Move *Recommending further research* and move *Indicating limitations* were conventional in Psychology RAs (Moyetta, 2016) but optional in Chemical engineering, Law, and Applied linguistics RAs (Jin, 2018; Tessuto, 2015; Liu & Buckingham, 2018). Regarding the step level, step *Comparing results with literature* was found to be conventional in the discussion section of Chemical engineering (Jin, 2018) and Applied linguistics (Liu & Buckingham, 2018) RAs. Therefore, despite the similarities that exist between disciplines, there are differences in the move structures due to the nature of different disciplines.

The aforementioned studies have a significant contribution to the literature. In this, the rhetorical structure of the discussion section was closely examined in different disciplines. However, to our knowledge, none compared the discussion section of two distinct disciplines and looked at the similarities and differences that might be found. Therefore, the current study aims to analyze and compare the rhetorical moves and the linguistics realizations in the discussion section of RAs in two distinct disciplines which are Medical Sciences and Applied Linguistics.

Objectives

1. To identify the rhetorical moves and steps in the discussion section of Medical Sciences and Applied Linguistics RAs.
2. To compare the rhetorical structure of the discussion section in Applied Linguistics and Medical Sciences RAs.
3. To examine the linguistics realizations that are used to formulate the communicative moves of the discussion section.

Research Questions

1. What are the communicative moves and steps that shape the discussion section of Medical Sciences and Applied Linguistics RAs?
2. To what extent is the rhetorical organization of the discussion section different in Applied Linguistics when compared with the Medical Sciences RAs?
3. What are the linguistics realizations used to formulate the moves and steps of the discussion section in both disciplines?

CONSTRUCTING THE CORPUS

The corpus of the study consisted of sixteen discussion sections of RAs published in Malaysian journals. 8 RAs were from the field of applied linguistics (ALRAs) and another 8 RAs were from the field of medical sciences (MSRAs). The identification of disciplines under hard and soft science was done according to Yang (2013) classification where they classified medicine as hard sciences and applied linguistics as soft sciences. The reason behind selecting Applied Linguistics from soft sciences disciplines is because Linguists study the language in all its aspects including its structure and thus RAs authors in this field might be more aware of the use of English language.

On the other hand, selecting Medical Science RAs is due to the lack of studies done on medical research RAs. This lack raises an argument of an undefined structure for researchers in this field trying to publish Medical RAs (Huang, 2014). To control the rapid changes, the chosen RAs were those published within the last four years (2014 to 2017) because according to Crookes (1986), the rhetorical structure of RAs might vary over time. Another criterion that has been considered in this research is only RAs with a separate discussion section were selected. RAs with a combination of findings and discussion, discussion and conclusion were not included in the corpus.

Regarding the selection of journals, the corpus of both disciplines was constructed from Malaysian journals. The corpus of ALRAs was constructed from the following journals: *3L: Language, Linguistics, Literature*; *Gema Online Journal of Language Studies*; *Pertanika Journal of Social Science and Humanities*; *Malaysian Journal of Learning and Instruction*, *Journal of Modern Languages (JML)*, *The International Journal of Language Education and Applied Linguistics (IJLEAL)*, *Journal of Language and Communication (JLC)*, *Issues in Language Studies (ILS)*. On the other hand, the corpus of Medical Sciences RAs was constructed from the following journals: *Malaysian Journal of Medical Sciences*, *Medical Journal of Malaysia*, *International Medical Journal Malaysia*, *Malaysian Journal of Medicine and Health Sciences (MJMHS)*, *International e-Journal of Science, Medicine & education. (IeJSME)*, *International Journal of Allied Health Sciences (IJAHS)*, *Education in Medicine Journal*, *Medicine and Health*.

Analytical Framework

For this study, Peacock (2002) model of eight moves was used as an initial framework of analysis to clarify the stages of moves in the discussion section. This model is a revised version based on Dudley-Evans (1994) framework. Peacock's (2002) framework was adopted for two reasons. First, it was based on the analysis of the discussion section of seven different disciplines from both soft and hard sciences. Second, the model analyzed a big corpus (36 RAs) compared to other previous studies (Basturkmen, 2012; Holmes, 1997; Ruiying & Allison, 2003). This model could be considered to be a suitable model for the analysis of this research. Like most other models in the literature, this framework has only moves and no steps. However, the current study has not restricted its findings to only the moves mentioned in the model because some moves may be realized by several steps each of which has its communicative function that contributes to the communicative purpose of a move as a whole. As it is an initial framework, more in-depth analysis might lead to the identification of steps and new moves in the discussion section. The eight moves of Peacock's (2002) model are:

- 1- Information move (background about theory/research aims/methodology)
2. Finding (with or without a reference to a graph or table)
3. Expected or unexpected outcome (comment on whether the result is expected or not)
4. Reference to previous research
5. Explanation (reasons for expected or unexpected results)
6. Claim [contribution to research (sometimes with recommendations for action)]
7. Limitation
8. Recommendation (suggestions for future research).

Data Analysis Procedures

After obtaining the required corpus, the moves and steps (if found) in each discussion was tagged manually and codes were given to them. In this, M1S2 means move number one, step number two and M6 means move number six. According to Holmes (1997), the sentence was selected as the unit of analysis implemented for examining moves, and the identifying feature was the communicative purpose of each move. The criterion for the classification of moves/steps was the linguistic evidence and formal clues such as explicit lexemes and expressions, verb forms, and conjunctions. For instance, the linguistic clues such as “*the findings revealed that... .*”, “*the findings of this study showed that... .*”, and “*the analysis showed*” were an explicit indication of Move 2 (Findings). It is important to note that the dominance of a move was not taken into account. That is, these moves were considered as either present or absent. Therefore, in this stage, the moves/steps analysis was done according to the procedure used by Dudley-Evans (1994).

According to Crookes (1986), a high level of agreement of two or more raters can improve the accuracy of an analysis. In this research, therefore, two experts were assigned as raters to verify the identification of rhetorical moves/steps in the discussion section of RAs. The first coder is a native speaker of English who has teaching experience in academic writing and the second is a lecturer who holds a PhD in English Language. Both were trained on how to use the coding procedure to perform move analysis from the sentence level considering both linguistic clues and content. The percentage agreement was found to be 82% which is an acceptable rate. As Miles, Huberman, and Saldana (2013) observed, an inter-coder reliability range between 80-90% is considered satisfactory as evidence of reliability.

After the moves/steps identification, the frequency of moves in discussion section was also measured. This process helped to verify the extent to which any given move has been employed. According to Kanoksilapatham (2005), 60% is the cut-off occurrence rate. In this, it will be decided that the moves can be considered as obligatory (if the move will be detected in 100% of the discussion chapters), conventional (if it is detected in 60% to 99% of the discussion chapters), and optional (if it is in less than 60% of the discussion chapters).

FINDINGS

The current study sought to examine the move structure of research articles discussion section in two fields of study namely applied Linguistics and medical sciences. A comparison between the two disciplines was made with regard to the rhetorical moves and steps. Also, the linguistics realizations that are associated with each move and step were explained with examples.

What are the communicative moves and steps that shape the discussion section of Medical Sciences and Applied Linguistics RAs?

Table 3 below shows the frequency and percentages of the identified moves and steps in the discussion section of ALRAs.

Table 3: Frequency and Percentage of the Rhetorical Moves in the Discussion of ALRAs

Rhetorical Moves	Frequency N=8	Percentages 100%
Move 1: Background information	2	25%
Step 1: Restating objectives	1	12.5%
Step 2: Representing research design	1	12.5%
Move 2: Findings	8	100%
Move 3: Expected or unexpected outcome	7	87.5%
Move 4: Reference to previous research	6	75%
Move 5: Explanation	8	100%
Step 1: Reasoning	3	37.5%
Step 2: Exemplification	3	37.5%
Step 3: Elaboration	2	25%
Move 6: Claim	6	75%
Move 7: Concluding information	1	25%
Step 1: Limitation	1	12.5%
Step 2: Recommendation	1	12.5%
Move 8: Implication	2	25%
Move 9: Summary of results	2	25%

The analysis from the corpus of ALRAs led to introducing new moves and steps that were not included in the adopted framework as it can be seen in table 3. First, It was found that move 1 (Background information) realized by two steps which are *Restating objectives* and *Representing research design*. Second, move 5 (Explanation) is constituted by three steps namely: *Reasoning*, *Exemplification*, and *Elaboration*. Third, two new moves which are Move 8 (Implication) and Move 9 (Summary of results) were added to the adopted framework. Finally, the two moves which are *Limitation* and *Recommendation* were merged into one move called *Concluding information* because it was found that these two communicative functions frequently occurred together and one precedes the other in the discussion. The rest of the moves such as findings, reference to previous research and claim remain the same as in the adopted framework Explanation and examples of these moves and steps are presented in the following parts of the study.

Regarding the frequency occurrence of the rhetorical moves and steps in the discussion of ALRAS, move 2 (Findings) and move 5 (Explanation) occurred in 100% of the corpus and thus considered as obligatory in the discussion of ALRAs. Move 3 (Expected or unexpected outcome), move 4 (Reference to previous research) and move 6 (Claim) were found to be conventional with the occurrence of 87.5% and 75% respectively. The rest of the moves (1, 7, 8, and 9) were optional with not more than 25% of the corpus.

This study also analyzed the rhetorical structure of the discussion section in Medical Science research articles based on Peacock's (2002) model of rhetorical moves. Table 4 below shows the frequency and percentages of the identified moves and steps in the discussion section of MSRAs.

Table 4: Frequency and Percentage of the Rhetorical Moves in the Discussion of MSRAs

Rhetorical Moves	Frequency N=8	Percentages 100%
Move 1: Background information	7	87.5%
Step 1: Restating objectives	3	37.5%
Step 2: Representing research design	2	25.%
Step 3: Defining a construct	2	25.%
Move 2: Findings	6	75%
Move 3: Expected or unexpected outcome	7	87.5%
Move 4: Reference to previous research	7	87.5%
Move 5: Explanation	7	87.5%
Step 1: Reasoning	4	50%
Step 2: Exemplification	2	25%
Step 3: Elaboration	1	12.5%
Move 6: Claim	6	75%
Move 7: Concluding information	8	100%
Step 1: Limitation	2	25%
Step 2: Recommendation	6	75%
Move 8: Implication	3	37.5%
Move 9: Summary of results	3	37.5%

The analysis from the corpus of MSRAs revealed similar rhetorical moves and steps as in ALRAS; however, differences were found in the frequency employment of these moves and steps. Regarding the frequency occurrence of the moves and steps in the discussion of MSRAs, only one move (Concluding information) occurred in the entire corpus (100%) and therefore it is considered an obligatory move in MSRAs. The first six moves in table 4 occurred in 6 to 7 out of the eight discussions and thus are considered conventional moves.

The last two moves (Implication and Summary of results) were the least frequent moves in the discussion of MSRAs and they are seen as optional moves.

To what extent is the rhetorical organization of the discussion section different in Applied Linguistics when compared with the Medical Sciences RAs?

Table 5 below shows the essentiality of the rhetorical moves and steps in both investigated disciplines.

Table 5: Occurrence of the Rhetorical Moves in Applied Linguistics and Medical Sciences RAs Discussion Section

Rhetorical Moves	Obligatory/Conventional/Optional	
	Applied Linguistics	Medical Sciences
Move 1: Background information	Optional	Conventional
Step 1: Restating objectives	Optional	Optional
Step 2: Representing research design	Optional	Optional
Step 3: Defining a construct	-	Optional
Move 2: Findings	Obligatory	Conventional
Move 3: Expected or unexpected outcome	Conventional	Conventional
Move 4: Reference to previous research	Conventional	Conventional
Move 5: Explanation	Obligatory	Conventional
Step 1: Reasoning	Conventional	Optional
Step 2: Exemplification	Conventional	Optional
Step 3: Elaboration	Optional	Optional
Move 6: Claim	Conventional	Conventional
Move 7: Concluding information	Optional	Obligatory
Step 1: Limitation	Optional	Optional
Step 2: Recommendation	Optional	Conventional
Move 8: Implication	Optional	Optional
Move 9: Summary of results	Optional	Optional

In general, the overall comparison between the two disciplines revealed that more frequent employment of moves and steps in the discussion section of medical RAs compared to that of Applied Linguistics RAs. There are 5 moves (Findings, Explanation, Expected or unexpected outcome, Reference to previous research and Claim) between obligatory and conventional moves in ALRAs while there are 7 moves (Concluding information, Background information, Findings, Explanation, Expected or unexpected outcome, Reference to previous research and Claim) between obligatory and conventional in MSRAs. This might indicate that research writers in Medical Sciences discipline give more attention in writing their discussion section because there are more of conventional moves and only few optional compared to ALRAs discussion where four out of the nine moves were optional. The reason could be due to the multiple authors of research article in the field of medical science. Surprisingly, move 7 (concluding information) which involve the presentation of two steps (limitation and recommendation) appeared to be an obligatory move in MSRAs as it is presented with 100% occurrences. On the other hand, this move was tagged in only one case in ALRAs. The frequent occurrence of this move in medical RAs

discussion could be due to the nature of the discipline. In this, the medical science field deals with the health of human being and thus stating move 7 can preserve the validity of the research article clearly (Huang, 2013). Besides, while Move 1 (Background Information) was seen to be conventional (87%) in MSRAs discussion, it was only coded twice in ALRAs. The discussion section of ALRAs witnessed 100% employment of move 2 (Finding) and Move 5 (Explanation). Both of these moves were seen to be conventional in MSRAs which are still considered frequently employed moves. Regarding the similarities between two disciplines, move 8 (Implication) and move 9 (Summary of results) were seen as optional moves in the discussion section of ALRAs and MSRAs.

What are the linguistics realizations used to formulate the moves and steps of the discussion section in both disciplines?

Move 1 (Background Information)

In this move (Move 1), the writers prepare the readers for the discussion of the results. Three steps namely step 1 (Restating objectives) step 2 (Representing research design) and step 3 (Defining a construct), were found to be the central component of this move. The present study found that this particular move is usually composed of one or two or all of the aforementioned steps. However, step1 (Restating objectives) was seen to be the dominant step of this particular move.

The function of step 1 (Restating objectives) is to restate the purpose of conducting research. This step is characterized by the use of reporting verbs such as *examine*, *focus*, and *highlight*. The common tense used to form this step is present simple followed by rare employment of past simple. This step is illustrated in the examples below. Similar use of linguistics realizations were noticed in both corpora.

Ex1/ First, this study *highlights* the pivotal role played by a set of carefully designed instructional innovations (M1S1). MS

Ex2/ Therefore, this paper *focuses on* enhancing young learners' regional culture awareness and English (M1S1). AL

The function of step 2 (Representing research design) is to represent some methodological aspects such as data collection, analysis procedure, tools, and instruments. The examples below explain the occurrence of this step.

This step is realized by the employment of verbs such as *used* and *conducted* and the use of these verbs is not limited but mostly in the past form. In addition, authors tend to use first person plural pronoun (we) to refer to their research in medical RAs and phrases such as *the study*, and *this paper* in applied linguistics RAs. This step is clarified in the two examples below.

Ex3/ *The study used* existing tools to understand the level of knowledge and attitude of medical students towards the practice of palliative care (M1S2). MS

Ex4/ *We conducted* the study at the beginning of the final clinical year (M1S2). MS

The last step that was found in Move 1 (Background information) is Step3 which was named as "Defining a construct". In this, the writers of RAs started their discussion by

defining one important and central variable of their research. Simple present is commonly employed in this step. It is important to note that this step was only found in Medical corpus and not in Applied Linguistics corpus. This step is usually structured as follow:

‘Noun “Construct”+ Be verb+ passive+as.....’.

Ex5/ Across the globe, *death is still viewed as* medical failure and emphasis on the importance of palliative care and end of life issues is minimal in the undergraduate medical curriculum (M1S3). MS

Move 2 (Findings)

In move 2, the main findings of the conducted study are presented, normally with relevant evidence such as statistics and examples or with reference to a graph or table. In addition, this move is realized by the use of reporting verbs such as *find* and *show*. Another characteristic is the use of simple past tense which is dominant in this move in both corpora. It can also be noticed that specific lexical bundles are commonly used in this step. 3 and 4 words lexical bundles such as *the result showed*, *in this study*, *results presented in* and *were also found to* were another important device used in this move. This move is crucial in every discussion section as the main findings need to be presented before they are discussed. Move 2 (Findings) illustrated in the following examples:

Ex1/*The study documented* only 59% agreed on the statement about affirming life and 22.3% believed that palliative care can prolonged life (M2). MS

Ex2/*We found a rate of* 29.5% which was relatively low compared to those found by Gohet al (84.6%) (M2). MS

Move 3 (Expected or unexpected outcome)

The authors of RAs in this move comment on the expectedness of the results in relation to the research questions or whether the results are within their expectation or defy the assumption or hypothesis of the research. It can be either expected or unexpected. In some cases, this move comes embedded in the Findings move as shown in example 1 below. In other cases, it comes before the Findings move where the authors state the unexpected outcome of their research as shown in example 2 below. Explicit lexemes such as *expected*, *interesting*, *surprising* and *obvious* are common devices used to construct this move in both Medical Sciences and Applied Linguistics disciplines. .

Ex1/Hence, it was *not surprising* to find the astigmatism was not obvious (M3). MS

Ex2/It is *interesting* to note that a mobile app like VocBlast makes students’ learning to be more exciting (M3). AL

Move 4 (Reference to previous research)

The function of this move is to compare and/or contrast the results with those reported in the literature. In this, writers refer to previous work to support their findings. They indicate whether their results are in line or contrast with the results of past studies.

This move is realized by the use of explicit lexemes such as *contradict*, *support*, *similar*, and *different* along with citing past studies by writing author’s name and the year.

Moreover, the use of lexical bundles (is consistent with, this study supports, this was similar to) were seen as an important device to construct move 4 (Reference to previous research). Finally, simple present is the common form of tense used in this move.

Ex1/ On the other hand, *this study contradicts the results of studies* where males employed more language learning strategies (Aliakbari&Hayatzadeh, 2008; Subramaniam &Palanisamy, 2014; Zarei&Beiza, 2013) (M4). AL

Ex2/*This is consistent with previous reports* from earlier studies in other parts of the world (M4). MS

Ex3/ *These were in agreement with other studies* although several other studies reported lower or higher rates (M4). MS

Move 5 (Explanation)

This move provides explanation for expected or unexpected results or one that differs significantly from previous research. It gives an example to support writers' explanation. This move realized by three steps which are *Reasoning, Exemplification, and Elaboration*. These mentioned steps were seen as the primary constructs of Move 5 and they are not necessary for all to be employed in every discussion. In many cases, the results require either for their occurrence or examples followed by elaboration. In this study, we have found a combination of step1 (Reasoning) and step3 (Elaboration) or step2 (Exemplification) and step3 (Elaboration) usually come together. In this, the writers either give reasons for their results or provide an elaboration based on the reasons given or give examples from their data and explain them. Medical RAs authors tend to more provide reasons and elaboration while Applied Linguistics RAs authors tend to give examples to explain their findings.

Step 1 (Reasoning) is realized by the use of certain cohesive devices such as *due to* and *because* to indicate the rationale behind a particular result. Step 2 (Exemplification) is characterized by the use of explicit phrases such as *for example* and *for instance* in order to provide from research data or data of previous work. Lastly, step 3 (Elaboration) is where authors elaborate what they have already said which can be an elaboration of a given reason or an elaboration of a given example. This step is commonly realized by the use of phrases such as *in other words* and *to elaborate*. The three steps are illustrated in the examples below.

Ex2/ This result may be *due to* the factors such as knowledge deficiency, poor preparation, lack of exposure, under stimulated learning and practice that act as a barrier towards successful palliative care (M5S1). MS

Ex4/ *For example*, in this study, a set of words were primarily activated to enable these young learners to understand and appreciate the significance and relevance of these words (M5S2). AL

Ex5/ *In other words*, the learners have recognized the importance of metacognitive strategies in their language learning strategies despite their education levels ranging from primary to tertiary education(M5S3). AL

Move 6 (Claim)

Research writers in this move present their claim about the generality of some or all of the reported results, which is inferred or concluded from the line of argumentation in the

previous part of the text. Hedges such as *may* and *could* are usually used in this move to cautiously state claims followed by the use of verbs like *imply* and *suggest*. Similar frequency and employment of linguistics cues in this move in both disciplines. The tense form that associated with this move is simple present tense. Move 6 is elaborated in the following examples:

Ex1/*This could imply that this variance largely depends on the differences represented by the cultural context as well as the discourse* (M6). AL

Ex2/*Therefore, our results may provide new evidence that non-citizens might have similar, or even better HRQoL compared to citizens* (M6). MS

Move 7 (Concluding information)

This move is a new move that has emerged as results of combining two moves (Limitation and Recommendation). In the new model, these two moves were treated as steps because the analysis of the current corpus showed that they commonly occur together. In this, limitation is followed by recommendation for further research.

The function of Move 7 (Concluding information) is to describe the limitations of the research being conducted and gives suggestions for further research by pinpointing particular issues to be addressed or improvements in the research methodology. This move consists of two steps which are step1 (Limitation) and step2 (Recommendation). This move was commonly found in MSRAs as an obligatory while it was rarely noticed in ALRAs. The main characteristics of this move is the use of present tense and certain 4-word lexical bundles such as *there are certain limitations* and *we recommend further studies*. The employment of first person plural pronoun (we) is very common among Medical RAs authors to state limitations and recommendations. The following examples show some ways of stating this move.

Ex1/*There are certain limitations to consider in our study* (M7). AL

Ex2/*We recommend further studies focusing on the reasons underlying the disparities in HRQoL between men and women, for both citizens and non-citizens* (M7). MS

Move 8 (Implication) and Move 9 (Summary of results)

The two new moves that emerged from the analysis were move 8 and 9. Although their occurrences were optional, they were found in both disciplines (Medical Sciences and Applied Linguistics). In move 8, RAs authors indicate the implications of their findings as can be seen in example 1. This move is realized by the use of explicit lexemes such as *implementation* and *implication*. On the other hand, move 9 provides a brief summary of the results. This move is usually very brief and contains a short representation of only the major finding of the study. It is also important to mention that move 9 mostly but not always occurs as the last statement in the discussion section of RAs and characterized by the use of explicit phrases like *in conclusion* and *in short*.

Ex1/ This finding bears certain crucial *pedagogical implications*, underpinning the principal role of language as a means of communication (M8). AL

Ex2/ *As a conclusion, our present study showed a high prevalence of MetS among local hypertensive subjects* (M9). MS

DISCUSSION

The current research aimed to come up with a new framework of moves and steps in the discussion section and make a comparison across disciplines (Medical Sciences and Applied Linguistics). The research analysis revealed several important findings. Interestingly, three steps were found under move 1 (Background information). This is in contrast with previous studies (Amnuai, 2017; Peacock, 2002) who also have this move and contained some important statements regarding research aim and theoretical background but they did not break this move into steps. The reason could be due to the findings where this move was considered as an optional in the discussion section. In addition, the analysis introduced three steps in Move 5 (Explanation) namely: Reasoning, Exemplification and Elaboration. Such finding stands contradictory to the findings reported by Peacock (2002) who indicated that Explanation move is the move where reasons are given for expected and unexpected studies and no steps were assigned to it. However, in the present study, reasoning was treated as a step because other functions come under move *Explanation* which are *Exemplification* where examples are provided and *Elaboration* where ideas are being restated with different words and using more simplified language. The function of Step 2 (Exemplification) is to provide examples. This is consistent with the findings of Kanoksilapatham (2005) and Amirian, Kassaian, and Tavakoli (2008); however, the later treat it as a Move not as a Step. This move is the most important move as it is the core of the discussion section. In this, evidence is provided as examples to support authors' results and claims. Therefore, more attention should be given to it. Regarding the results that emerged from the disciplinary comparison, differences in the employment of moves were found in Applied Linguistics and Medical Sciences RAs. The most frequent employed moves in ALRAs were move 2 (Finding) and move 5 (Explanation). Similar results were found in Amirian et al. (2008) and Dujcik (2013) who also examined Applied Linguistics RAs. This may suggest that these two moves are the central components of the discussion section in ALRAs. On the other hand, despite the overall existence of all the investigated moves and steps in the corpora of Medical Sciences, move 7 (concluding information) which contains two steps (Limitation and Recommendation) was found to be obligatory in MSRAs. Even though this move was not obligatory in a study conducted by Huang (2014), it was one of the most frequently occurring move in his corpus. It can be concluded that provide limitations and recommendations is necessary in MSRAs in order to show what has been currently done in a specific area and what it needs to be done in future investigations.

The findings of the present study though small managed to provide three implications. First, it suggests a possible model which includes not only moves but also steps in the discussion section of RAs. This new framework (see table 6 below) can help novice writers to write a well-organized discussion section that meets the expectations of journals editors. Following the proposed moves and steps in writing the discussion section might contribute to the quality of a research article which might increase the possibility of novice writers to publish their manuscripts in prestigious journals such as ISI and Scopus indexed journals. Second, the study examined the linguistic realizations such as chunks, phrases, and cohesive devices that can be used to formulate each and every move and step in the discussion section. These linguistics segments will allow novice writers to structure their discussion easily and clearly, present the central components of this very section. Third, publishers and journal editors could make use of this framework of moves and steps and their linguistics attachments to form a checklist that will help to assess the quality of RAs

discussion section. In this, they can evaluate the level of organization and structure and provide authors with suggestions (if any) to improve their manuscripts.

Table 6: The New Model of Moves and Steps in the Discussion Section of RAs

Move	Name of Moves and Steps
Move 1	Background information
Step 1	Restating objectives
Step 2	Representing research design
Step 3	Defining a construct
Move 2	Findings
Move 3	Expected or unexpected outcome
Move 4	Reference to previous research
Move 5	Explanation
Step 1	Reasoning
Step 2	Exemplification
Step 3	Elaboration
Move 6	Claim
Move 7	Concluding information
Step 1	Limitation
Step 2	Recommendation
Move 8	Implication
Move 9	Summary of results

CONCLUSION

This paper sought to examine the rhetorical moves and steps of RAs discussion section in Applied Linguistic and Medical Science disciplines and compare between the two disciplines. It also explored the linguistics realizations that characterize each move and steps of the discussion. The analysis led to the emergent of new moves and steps that were added to the initial framework of rhetorical moves. Regarding the disciplinary variation, both similarities and differences were found in the rhetorical structure of Applied Linguistics RAs and Medical Sciences RAs. The findings led to propose a new revised model of discussion section moves that can be applied on the discussion section of RAs in various fields of sciences and humanities.

There are certain limitations in this research. First, only two disciplines which are Applied Linguistics and Medical Sciences were examined in this paper. Therefore, it is recommended that future research could investigate RAs from various other disciplines such as Engineering, Economic and Computer Science and found out how the discussion section might vary across disciplines. Additionally, the corpus of the present study is small as it was only 16 RAs discussion sections, eight RAs from each discipline. Thus, research could be carried out to analyze a larger corpus to have a stronger claim. Another limitation is that the RAs are constructed from Malaysian journals and they could be possibly written by Malaysian writers which may affect the employment a certain rhetorical structure to the discussion section of RAs.

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